

# Review: Vaginal signs and symptoms perform poorly in diagnosing vaginal candidiasis, bacterial vaginosis, and vaginal trichomoniasis

Anderson MR, Klink K, Cohrssen A. Evaluation of vaginal complaints. JAMA. 2004;291:1368-79.

## QUESTION

In patients with vaginitis, how do individual symptoms, physical examination signs, and laboratory tests perform in diagnosing vaginal candidiasis (VC), bacterial vaginosis (BV), and vaginal trichomoniasis (VT)?

## METHODS

**Data sources:** Studies were identified by searching MEDLINE (1966 to April 2003), hand-searching the most recent American College of Obstetricians and Gynecologists Technical Bulletin, and scanning bibliographies of relevant studies.

**Study selection and assessment:** Studies were selected if they included symptomatic patients in primary care or sexually transmitted disease clinics, compared a diagnostic test with a recognized gold standard, calculated sensitivity and specificity, and discussed tests that would provide diagnostic information during the office visit. Gold standard tests for VC, BV, and VT included a positive culture or identification of yeast by microscopy, the Amsel criteria (3 of a thin, homogeneous vaginal discharge, clue cells, positive whiff test, and vaginal pH level > 4.5), and a positive culture, respectively. Studies were assessed for methodological quality using a 3-level scale (level 1 = highest quality).

**Outcomes:** Sensitivity, specificity, and likelihood ratios.

## MAIN RESULTS

18 articles met the selection criteria. The quality of the studies ranged from level 2 to 3. The test characteristics of individual symptoms and physical examination signs are in

the Table. Laboratory tests performed better than signs and symptoms in diagnosing VC, BV, and VT (Table).

## CONCLUSIONS

In patients with vaginitis, individual symptoms and physical examination signs do not perform well in diagnosing vaginal candidia-

sis, bacterial vaginosis, and vaginal trichomoniasis. Laboratory tests perform better for diagnosing these conditions.

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### Test characteristics of symptoms, signs, and laboratory tests for diagnosing vaginal candidiasis (VC), bacterial vaginosis (BV), and vaginal trichomoniasis (VT)\*

Tests	Diagnosis	Sensitivity	Specificity	+LR	-LR
<b>Individual symptoms</b>					
Cheesy discharge	VC	65%	73%	2.4	0.48
Odor	BV	97%	40%	1.6	0.07
Itching	VC	27%	92%	3.3	0.79
Redness	VC	28%	86%	2.0	0.84
External dysuria	VC	33%	85%	2.2	0.79
Previous yeast infection	VC	35%	90%	3.3	0.72
<b>Physical examination signs</b>					
White, curdy discharge	VC	16%	97%	6.1	0.86
Yellow discharge	BV	60%	85%	4.1	0.46
Yellow discharge	VT	89%	93%	14	0.12
Moderate discharge	BV	62%	75%	2.5	0.5
Profuse discharge	BV	4%	99%	3.0	0.98
High cheese odor	BV	78%	75%	3.2	0.30
Redness or edema	VT	18%	97%	6.4	0.85
Any inflammation	VC	46%	78%	2.1	0.69
<b>Laboratory</b>					
Normal pH level (< 4.9)	VC	71%	90%	7.2	0.32
Gram stain	VC	65%	100%	31	0.36
Bacilli with corkscrew motility	BV	65%	100%	44	0.36
Positive whiff test	VT	67%	65%	1.9	0.51
Wet mount	VT	67%	100%	100	0.34

\*Diagnostic terms defined in Glossary.

## COMMENTARY

Common, non-life-threatening problems are often the least-studied areas of medicine, despite the overall burden of disease that they cause. At last, we are beginning to accumulate evidence to guide diagnosis and management in these areas. The review by Anderson and colleagues presents a summary of the available evidence on the accuracy of the symptoms, signs, and office laboratory tests for diagnosing vaginal complaints.

With the exception of white curdy discharge, which helps to rule in the diagnosis of VC; yellow discharge, which can indicate the presence of either BV or VT; and redness or edema, which can also indicate VT, these symptoms and signs are only moderately helpful in determining if a patient has any of these vaginal conditions. The absence of symptoms and signs is even less helpful in ruling out disease, with only the absence of odor or yellow discharge ruling out BV. Office laboratory tests per-

form better because they rule in the disease if they are positive, but they do not rule out the disease if they are negative. Furthermore, many clinicians do not have the skills, time, or equipment to use these tests.

Several questions remain after reading this review: Could there be combinations of symptoms and signs that might better rule in or rule out the diagnosis? How does this information combine with more definitive testing, such as culture of a high vaginal swab? What is the treatment threshold for these conditions? Might it be better to treat on clinical suspicion, and test only those patients in whom a course of treatment fails? Primary care gynecology requires more research to guide clinical decision making in this area.

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